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# **Establishing 21<sup>st</sup> Century Processes**

## **Exposure Assessment**

### **The Path Forward**

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# Speaker Bio

- **Danny Field is the NNSA Chief Industrial Hygienist. He has over 25 years of experience in Industrial Hygiene and is a Certified Industrial Hygienist. While in the U.S. Navy he operated and performed repairs on various nuclear power plant systems gaining extensive experience in Nuclear Engineering and Operations as well as Health Physics. Mr. Field was Chair of the New SSN Environmental Working Group and developed the integrated environment, safety and health sustainment model which is the cornerstone of the design basis for the Virginia Class of submarines. Mr. Field also managed local, regional and fleet-wide IH programs while in the U.S. Navy. Mr. Field has extensive experience related to the implementation and management of safety and industrial hygiene programs in DOE and is currently the Chair of the DOE Industrial Hygiene Coordinating Committee. In this role Mr. Field is leading an effort to revitalize DOE's approach to ISMS and has provided numerous presentations on this effort. Mr. Field has led numerous formal assessments for both the DoD and DOE/NNSA and has participated as a team member in readiness assessments for the start-up of nuclear facilities. He regularly conducts assessments of industrial hygiene program implementation throughout NNSA. Mr. Field holds a Bachelor of Science degree in Occupational Health and a Master of Science degree in Safety and Health Engineering both from National University in San Diego, California.**

- **Effectively managing risks...**

- » Exposure to Environmental, Safety and Occupational Health (ESOH) factors is a major concern for DOE, where employees handle chemicals, are exposed to hazardous conditions and require training in safe handling of materials and processing procedures. As an organization, DOE/NNSA is liable for injuries incurred, rather they are acute or latent effects.
- » The cost for unmitigated exposures can be extremely high.

# Why do we need to Act?

- **Recently EEOICPA Compensation crossed the \$5 BILLION barrier.**
- **Federal Agencies are required to establish Longitudinal Exposure Records for each employee.**
  - » Federal and Contractor
  - » Follows the employee through their career
  - » DOE/NNSA accepts liability for each new employee
- **We must establish a process for controlling and managing data that survives the M&O.**
  - » That for which DOE accepts responsibility and therefore an incurred liability.

# How can IH help?

- **Implementation of a common Exposure Assessment process that is fully integrated with ISM and the Work Process is needed.**
  - » Re-Write the DOE IH STD
    - Lay-out elements of a functioning IH Program
    - Includes guidance for Strategic Planning, Staffing, Training and Qualification
    - Specifies elements of IH survey process (baseline and periodic)
    - Replace outdated EA Guide with new chapter in STD.
    - Provide guidance for other programs commonly managed by IH.
  - » Provide recommended outcome measures that are value added.
  - » Use of Integrated ES&H Data
    - Data is stewarded through User Defined Groups.
    - Use of standardized Pick Lists

## ● Use of Common Terminology

- » IH Survey (baseline, periodic), an IH survey includes:
  - HHA – covers one or more work processes or tasks conducted within a defined work area such as a shop or lab.
  - HHE - A comprehensive "wall-to-wall" Health Hazard Evaluation (HHE) of a work area. A HHE includes one or more HHAs. A HHE covers one work area (shop, lab, or other defined work area). An HHE also considers results of HHEs as well as HHEAs for that work area that pre-date the Worker Safety and Health Rule and are still valid.
  - HHEA - An assessment for chemical, physical, and radiological (non-ionizing) hazards, biological agents, and ergonomic stressors which present a known or potential health hazard using recognized exposure assessment methodologies (workplace monitoring) including personal, area, wipe, and bulk sampling, biological monitoring, and observation and use of accredited industrial hygiene laboratories.
- » Health Hazard Rating (HHR). A methodology for determining the priority for conducting IH surveys including HHEs, HHAs and HHEAs.

# DOE IH - EA

Health Effects Category	4	6	8	12	16
	3	3	6	9	12
	2	2	4	6	8
	1	1	2	3	6
	0	0	0	0	0
		1	2	3	4
6 – 16 Annual		Health Exposure Rating			
3 – 4 Every 2 Yrs					
0 – 2 Every 3 – 5 Yrs					

- **The six major steps of a functional occupational exposure assessment program are:**
  - » basic characterization
  - » quantitative risk assessment and priority setting
  - » exposure monitoring
  - » interpretation and decision making
  - » recommendations and reporting
  - » reevaluation.
- **The new IH STD follows the AIHA Guide for Assessing and Managing Occupational Exposures.**

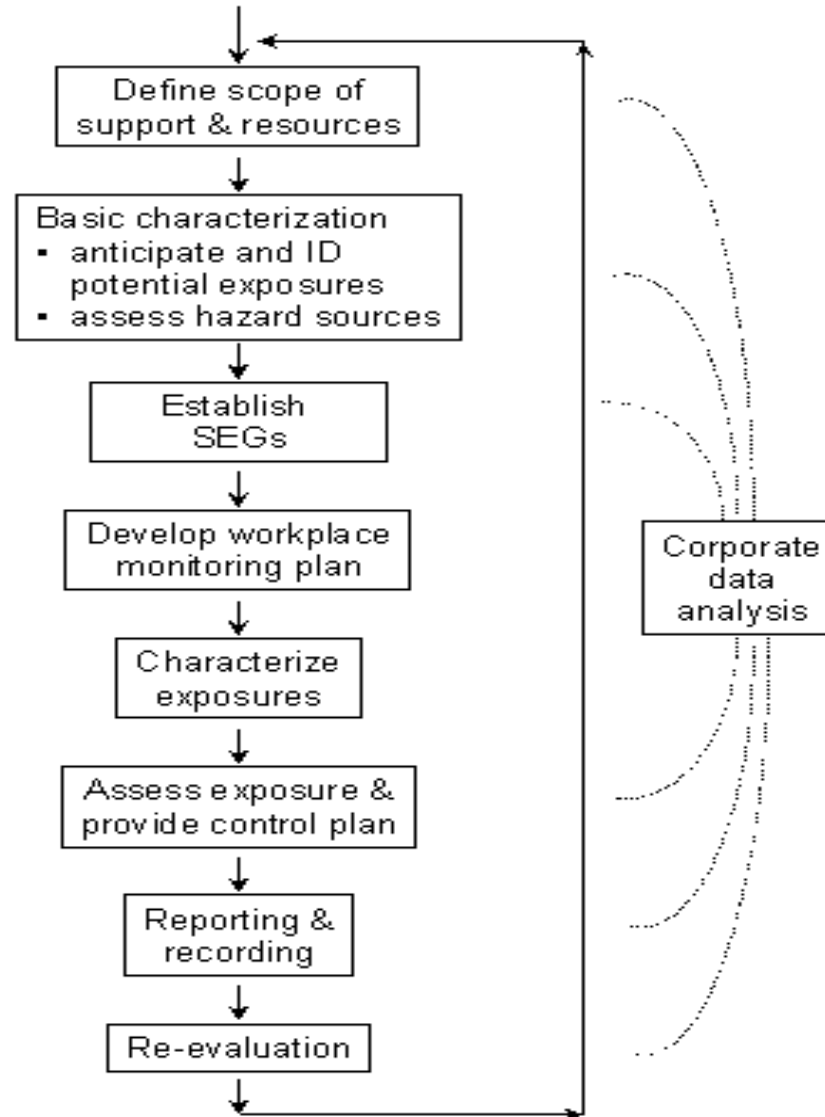


# DOE IH STD - EA

<b>10 CFR 851</b> <b>Exposure Assessment Steps</b>	<b><i>AIHA: A Strategy for Assessing and Managing Occupational Exposures, Third Edition, 2006.</i></b>
<b>Basic characterization</b> <b>851.21(a)(4)-(6)</b>	<b>Chapter 3 - Basic Characterization and Information Gathering</b>
<b>Qualitative risk assessment and setting of priorities</b> <b>851.21(a)(4)-(6)</b>	<b>Chapter 4 - Exposure Assessment: Establishing Similar Exposure Groups</b> <b>Chapter 5 - Exposure Assessment: Defining and Judging Exposure Profiles</b>
<b>Exposure monitoring</b> <b>851.21(a)(1)-(3), (7), (8)</b>	<b>Chapter 6 - Further Information Gathering</b>
<b>Interpretation and decision-making</b> <b>851.21(a)(2)-(3), 851.22</b>	<b>Chapter 7 - Quantitative Exposure Data: Interpretation, Decision Making, and Statistical Tools</b> <b>Chapter 22 - Health Hazard Control</b>
<b>Recommendations and reporting</b> <b>851.20(a)(5), .20(b)(3)-(4), .21(a)(2)-(3), 851.26</b>	<b>Chapter 9 - Recordkeeping and Reporting</b>
<b>Reevaluation</b> <b>851.21(c)</b>	<b>Chapter 8 - Reassessment</b>

- **The IH STD allows for use of SEGs to help quantify and mitigate exposure hazards.**
  - » When appropriate
    - Non-routine Ops may not conform to a specific SEG, HEG or PEG
  - » Provide common tools
    - Use of standardized naming nomenclature and pick lists
    - Establish common set of OELs
  - » SEGs may be defined in a number of ways but the exposure will always be associated with a specific work process.
    - Workgroup, Facility or Grouping of Facilities, Program, Project, etc.

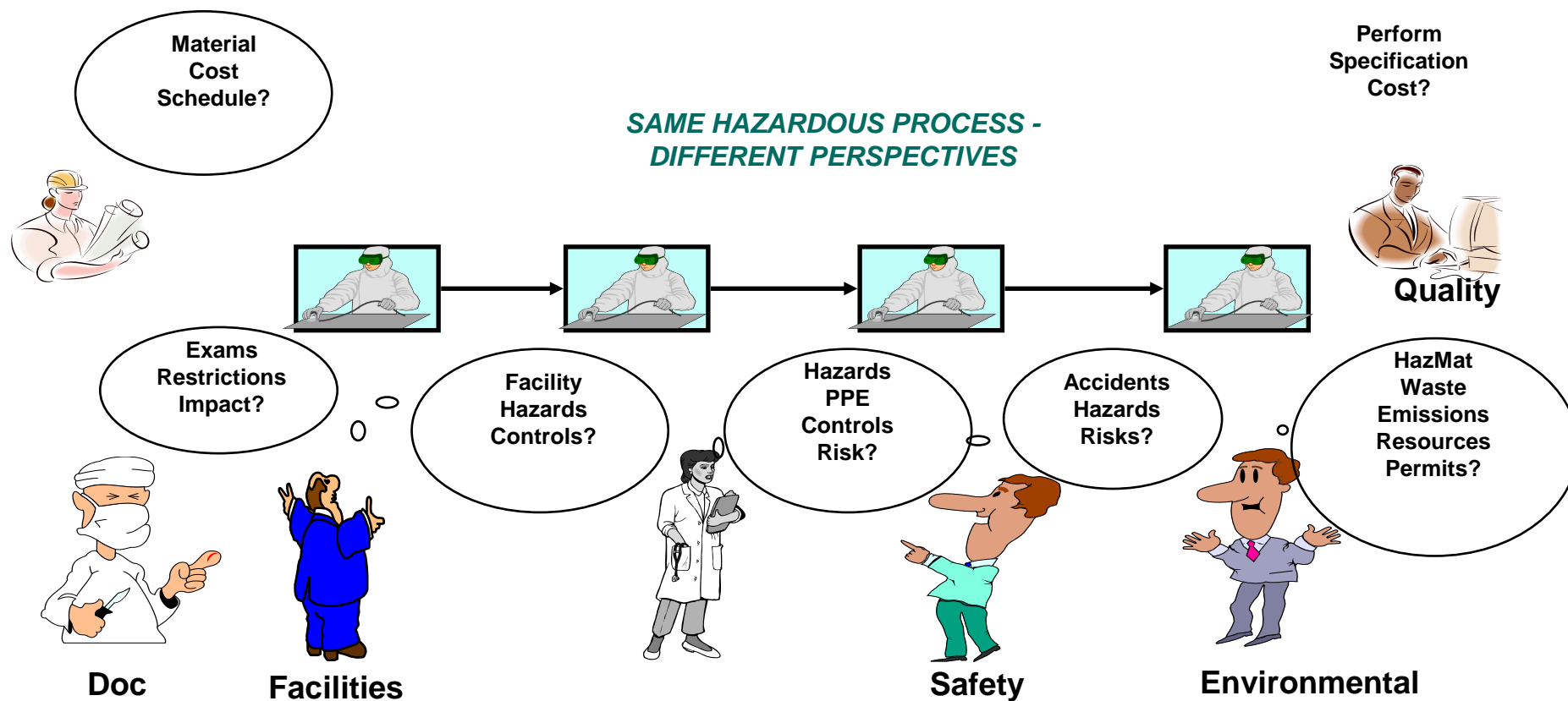
# DOE/NNSA IH EA Process



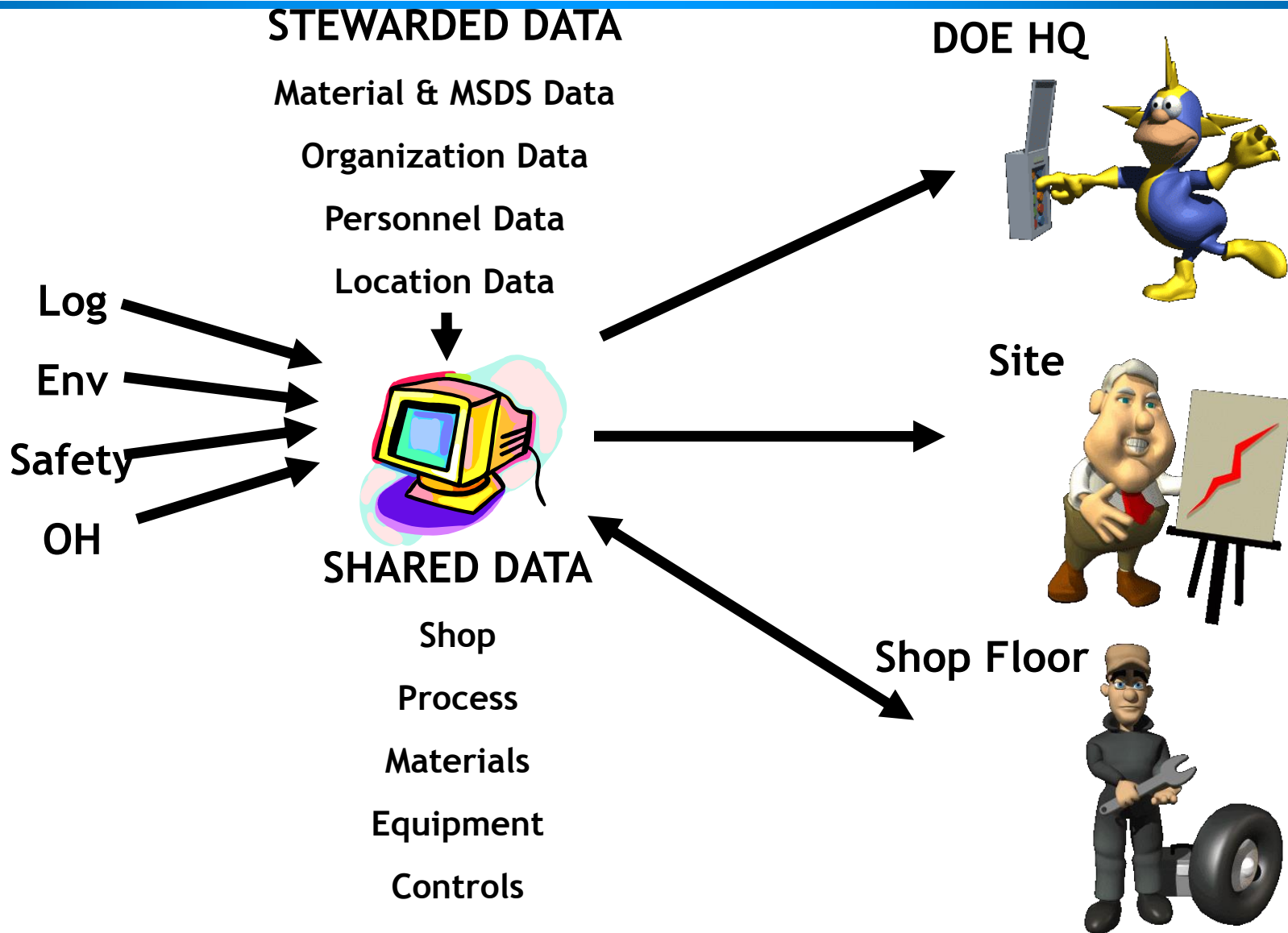
# Impediments

- **Lack of capability to integrate various data inputs of related employee health hazards and work processes so that baseline and periodic IH surveys may be completed, documented and the information shared with employees (craft and non-craft, federal and contractor), line management (including 1<sup>st</sup> line supervisors), ES&H professionals, healthcare providers, work planning professionals and emergency managers.**
  - » Lack of ability to readily retrieve and fully analyze employee health hazard exposure information. This is hampered by the lack of integration among data systems.
  - » Lack of compatibility or consistency among local sites with regard to employee health hazard data and records (i.e. data is not stewarded).
  - » Health hazard information is not readily available in a consistent format (i.e. standardized) at the local level.

# DOE IH - EA



# E-ISM



*Enter Data Once and Share Across the Enterprise*

# Proposed Path Forward

- » Establish a Center of Excellence to administer phased roll out of E-ISM.
- » Establish Data Stewards (all sites involved in process)
  - DOE/NNSA CCB
  - User work groups for various modules and “pick list”
- » Work with headquarters to establish/modify policies
- » Work with headquarters and sites to work initiative into the Multi-Site Initiatives
  - Sponsor identified
  - Resources justified/allocated